

The Examiner further indicated that claims 1-7 were rejected under 35 U.S.C. §102(b) as anticipated by, or in the alternative under 35 U.S.C. §103(a) as being obvious over United States Patent No. 5,284,492 (Dubin). The Examiner also rejected claims 8-21 under 35 U.S.C. §103(a) as being unpatentable over United States Patent No. 5,284,492 (Dubin) in view of United States Patent 5,669,938 (Schwab) and United States Patent No. 5,873,916 (Cemenska et al).

The Examiner also rejected present claims 1-7 under 35 U.S.C. §103(a) as being obvious over United States Patent No. 5,584,894 (Peter-Hoblyn). The Examiner further rejected claims 8-21 under 35 U.S.C. §103(a) as being obvious over United States Patent No. 5,584,894 (Peter-Hoblyn) in view of (Schwab) and (Cemenska et al).

Finally, the Examiner has also provisionally rejected claim 21 under 35 U.S.C. §101 and has provisionally rejected claims 1-20 under the judicially created doctrine of double patenting over claims 1-5 and 8-16 of co-pending Application No. 09/108,875.

By this amendment, Applicants cancel claims 8,10 and 21 and amend claims 1-3,6,9,11,15,16, and 18.

Rejections under 35 U.S.C. §112 and 35 U.S.C. §101

Applicants have cancelled claims 8, 10 and 21 and thus the rejections of claims 10 and 21 under 35 U.S.C. §112, second paragraph, and the provisional rejection under 35 U.S.C. §101 are now moot.

Applicants respectfully traverse the rejections of claims 1-21 under 35 U.S.C. §112, second paragraph, for the use of the terms 'purified water'.

Please note that applicants maintain the term 'purified water' is not indefinite as the specification clearly teaches what is encompassed by the term 'purified'.

water'. Specifically, the specification teaches at page 5, lines 10-28 that:

The water is preferably purified such that it contains very low concentrations of ions and other impurities, particularly calcium ions, magnesium ions, and silicon. This is desirable because impure water contributes to ashing and engine deposit problems after long-term use, which can lead to wear, corrosion, and engine failure. The purified water preferably contains no greater than about 50 parts per million calcium and magnesium ions, and no greater than about 20 parts per million silicon. More preferably, the purified water has a total hardness of less than 10 parts per million and contains no greater than about 2 parts per million calcium and magnesium ions, and no greater than about 1 part per million silicon. Suitable purification techniques are well-known and include distillation, ion exchange treatment, and reverse osmosis, with reverse osmosis being preferred having a lower cost and ease of operation.

For these reasons, the rejections of claims 1-21 (now claims 1-7, 9 and 11-10) under 35 U.S.C. §112, second paragraph, should be withdrawn.

Rejections under 35 USC §103(a) & §102(b) based on Dubin.

Applicants respectfully traverse the rejections under 35 U.S.C. §102(b) and 35 U.S.C. §103(a) that are based on the Dubin reference. Please note, the main independent claim (i.e. claim 1) has been amended. As the Examiner is no doubt aware, for a rejection under 35 U.S.C. §102(b) to be proper, each and every element and limitation contained in the claims at issue must be disclosed within the cited prior art reference. Likewise, it has long been established that in determining the obviousness of an invention under 35 U.S.C. §103(a), the Examiner must ascertain the scope and content of the prior art and the differences between the prior art and the claims that issue. If the differences between the subject matter sought to be patented in the prior art are such that the subject matter as a whole would not have been obvious to a person of skill in the art and a prima facie case of obviousness does not exist and the

obviousness rejection under 35 U.S.C. §103(a) is improper.

The basic problem with the rejections based on the Dubin reference under both 35 U.S.C. §103(a) as well as 35 U.S.C. §102(b) is that the Examiner has improperly characterized the Dubin reference. The major differences between the present invention, as claimed, and the Dubin reference includes: the fuel application, the water, and the antifreeze, as well as the final fuel droplet size.

For example, the present invention also claims an average droplet size less than 10 microns (claim 1) and preferably between 5 and 6 microns (claim 2) whereas Dubin teaches a droplet size of below about 5 microns. Again, this is but one difference between the present claims and the Dubin teachings.

Other important differences include the water purity and the fuel application. In light of these differences, is the Examiner alleging that demineralized water is the same as purified water?; or that a reciprocating engine is the same as a gas turbine? If so, Applicants kindly request an affidavit from the Examiner on these points or other document which suggests that demineralized water and purified water are the same and/or that a reciprocating engine is equivalent to a gas turbine, or that such differences are immaterial to the invention, (a statement that applicants would refute).

In addition, one of the secondary references, Cemenska et al., which teaches the use of selected antifreeze agents in an emulsified fuel is believed to be an improper prior art reference under 35 USC 102(e). The enclosed declaration is respectfully submitted to show the invention claimed in the present application was made before the effective date of the Cemenska et al. reference and that the Cemenska et al. reference is not prior art under 35 U.S.C. 102(e). It is respectfully submitted that the submitted affidavit overcomes the 35 U.S.C. 103(a) rejections that cite the Cemenska et al. reference.

Finally, none of the legitimate prior art references teach or disclose the use of ammonium nitrate. (See claim 20 of the present application).

Rejections under §103(a) based on Peter-Hoblyn.

Turning now to the rejections based on the Peter-Hoblyn reference under 35 U.S.C. §103(a), again, the Examiner has generalized and/or overlooked some of the differences. The major differences between the present invention, as claimed, and the Peter-Hoblyn reference includes: the purity of the water, the antifreeze, as well as the final fuel droplet size.

As the Examiner points out, Peter-Hoblyn teaches a significant majority of the particles having a droplet size of below about 5 microns. Conversely, the present invention also claims an average droplet size less than 10 microns (claim 1) and preferably between 5 and 6 microns (claim 2) Again, this is but one difference between the present claims and the Peter-Hoblyn teachings. As indicated above with respect to the Dubin reference, another important differences is the water purity and use of ammonium nitrate (See claim 20).

Finally, as also indicated above, the secondary reference, Cemenska et al., is believed to be an improper prior art reference under 35 USC 102(e) and therefore any rejections based, in part on such reference should be withdrawn.

Double Patenting Rejection

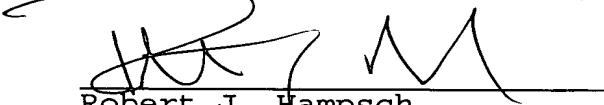
Applicants acknowledge the similarities between the present claims and the claims of co-pending Application No. 09/108,875 that forms the basis of the provisional rejection under the judicially created doctrine of double patenting. Applicants will submit a

timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) upon the indication of allowable subject matter in the present claims or upon the issuing of patent claims in the co-pending Application No. 09/108,875. Be advised however, that the filing dates of both the present Application as well as co-pending Application No. 09/108,875 are identical (July 1, 1998) and therefore there is no patent term to disclaim.

In view of the above, applicants submit that claims 1-7, 9 and 11-20 are now in condition for allowance and prompt and favorable action is earnestly solicited. However, should there remain any outstanding issues that require adverse action, it is respectfully requested that the Examiner telephone the undersigned attorney so that such issues are resolved as expeditiously as possible.

No new matter has been added and the changes to the claims are directed to subject matter that was previously disclosed in the specification or readily known to those skilled in the art. Likewise, no new fees are required since the number of independent claims and the number of total claims pending after this amendment do not exceed the number previously paid for.

Respectfully submitted,



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Declaration in Support of Response



Robert J. Hampsch hereby declares:

- (1) That he is a graduate of the Illinois Institute of Technology, Chicago, IL, having earned a Bachelor of Science (BS) degree in Mechanical and Aerospace Engineering in 1983 and that he is also a graduate of Whittier College School of Law, Los Angeles, CA having earned a degree of Juris Doctor (JD), cum laude in 1989; and
- (2) He is presently employed by Caterpillar Inc. at the Legal Services Division, Intellectual Property Department in the capacity as Intellectual Property Counsel, and has been practicing in the field of intellectual property law since 1990; and
- (3) He has been involved in the patent application preparation and filing of applications relating to engine related technology for Caterpillar Inc. since 1996 and is familiar with Caterpillar's invention reporting and patent obtaining processes as well as Caterpillar's patent information system, referred to as 'PatentMaster'; and
- (4) He is familiar with the invention claimed in United States patent application serial number 09/108,447 filed July 1, 1998 titled "HIGH STABILITY FUEL COMPOSITIONS" and the United States Patent No. 5,873,916 (Cemenska et al.) filed February 17, 1998 titled "FUEL EMULSION BLENDING SYSTEM"
- (5) The Intellectual Property Department for Caterpillar Inc. received an invention disclosure for the subject matter claimed in United States patent application serial number 09/108,447 on or about October 21, 1997. Such invention was indicated as being conceived or made prior to that date by the named inventors, as reported on Caterpillar Invention Notification Form and recorded in Caterpillar's patent information system, 'PatentMaster'; and
- (6) The Caterpillar Intellectual Property Department diligently processed the invention disclosure and contracted with outside counsel to write the corresponding patent application. The patent application was filed with the USPTO on July 1, 1998; and
- (7) That the invention claimed in United States patent application serial number 09/108,447 was conceived or made prior to the effective filing date of United States Patent No. 5,873,916 (Cemenska et al.), and therefore the Cemenska et al. reference is an improper prior art reference under 35 USC 102(e) against the above-mentioned patent application.
- (8) The undersigned further declares that all statements made herein of his own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code.


Robert J. Hampsch

10/16/99

Date